

ABSTRACT OF THE DISCLOSURE

The present invention relates to the synthesis of chiral epoxides via a catalytic asymmetric oxidation of olefins. Additionally, the methodology provides a method of asymmetrically oxidizing sulfides and phosphines. This asymmetric oxidation employs a catalyst system composed of a metal and a chiral bishydroxamic acid ligand, which, in the presence of a stoichiometric oxidation reagent, serves to asymmetrically oxidize a variety of substrates.